UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,435	02/22/2002	Mark G. Erlander	485772003300	8216

20350 7590 03/16/2006

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
CHUNDURU, SURYAPRABHA	
ART UNIT	**PAPER NUMBER**
1637	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/080,435	ERLANDER ET AL.	
	Examiner	Art Unit	
	Suryaprabha Chunduru	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' response to the office action filed on January 13, 2006 has been entered.

Status of the Application

2. Claims 1-21 are pending. All amendments and arguments have been thoroughly reviewed and deemed persuasive. The rejections made in the previous office action are withdrawn in view of the persuasive arguments and new grounds of rejections. This action is made Non-Final.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

(i) The instant abstract recites legal phraseology "said" at multiple lines of the abstract. Correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

A. Claims 1-12, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ornstein et al. (Clin Cancer Res., Vol. 6, page 353-356, 2000) in view of Hendrickson et al. (Nucleic Acids Res., Vol. 23, No.3, pp. 522-529, 1995).

Ornstein et al. teach a method of claims 1-2, and 4 for detecting the presence of a ligand in a cell or tissue, comprising;

obtaining a tissue sample, staining said tissue sample to identify cells of interest (see page 353, col. 2, lines 1-4 under materials and methods section);

capturing or isolating said cells of interest (see capture by laser capture micro dissection (LCM)) (see page 353, col. 2, line 5-6, under materials and methods section, page 354, col. 1, line 8);

detecting said ligand (PSA) in the captured cells (see page 354, col. 1, paragraph 1, indicating detection of PSA ligand in the LCM procured cells).

With regard to claim 3, Ornstein et al. teach that said sample is a tissue section (see page 353, col. 2, line 1-2 under materials and methods section);

With regard to claim 6-7, Ornstein et al. teach that said staining is by histochemical staining and capturing by LCM (see page 353, col. 2, line 3-6, indicating H & E stain and LCM for capturing);

With regard to claim 10, Orstein et al. teach that said sample is prostate tissue (see page 353, col. 2, line 1-2 under materials and methods section);

With regard to claim 11, 19, Orstein et al. teach that said ligand is prostate specific ligand (PSA) see page 354, col. 1, paragraph 1, indicating detection of PSA ligand in the LCM procured cells);

With regard to claim 12, 21, Orstein et al. teach said capturing involves one to two cells (normal and malignant cells) (see page 353, col. 2, paragraph 2 under introduction subheading);

However, Ornstein et al. did not teach contacting said tissue sample with a binding agent (antibody) attached to a detectable nucleic acid and detecting said ligand by using polymerase chain reaction.

Hendrickson et al. teach a method of claims 1-12, 18-19, 21 for detecting a ligand by labeling antibody with a DNA and detecting said ligand bound to antibody DNA conjugate using PCR (page 522, col. 2, paragraph 3, page 524, col. 1, line 1-18, paragraph 1). Hendrickson et al. also teach detection of plurality of ligands (β-gal, hTSH, hCG analytes), wherein plurality of binding agents (antibodies and antibodies are proteins) attached to plurality of different nucleic acid molecules (oligonucleotide labels) (see page 525, col. 2, paragraph); quantitating PCR products to detect said ligand (see page 525, col. 2, paragraph 2).

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to modify the method for detecting a ligand as taught by Ornstein et al.

in a manner of as taught by Hendrickson et al. with a step of including antibody conjugated to a nucleic acid sequence for the purpose of increasing the sensitivity of the assay in detecting a ligand in cell sample. One skilled in the art would be motivated to combine the method as disclosed by Ornstein et al. in a manner taught by Hendrickson et al. because Hendrickson et al. explicitly taught that the DNA replication of antibody-borne DNA labels enhance the sensitivity of the immunoassays (see page 522, col. 1, paragraph 1 under Introduction section). An ordinary artisan would have a reasonable expectation of success that inclusion of the step of antibody-borne DNA labels would result in increasing the sensitivity of detection of said ligand and such modification of the method would be obvious over the cited prior art in the absence of secondary considerations.

B. Claim 13-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ornstein et al. (Clin Cancer Res., Vol. 6, page 353-356, 2000) in view of Hendrickson et al. (Nucleic Acids Res., Vol. 23, No.3, pp. 522-529, 1995) as applied to claims 1-11, 18-19, 21 above, and further in view of Erlander et al. (WO 00/28092).

Ornstein et al. in view of Hendrickson et al. teach a method for detecting a ligand in a cell or tissue sample as discussed above in section 5A.

Neither Ornstein et al. nor Hendrickson et al. teach that use of a T7 promoter to initiate promoter driven transcription to detect said ligand and use of microarray for detecting the transcription products.

Erlander et al. teach a method for detecting a gene expression profile in a captured cell or tissue sample, comprising

Capturing cells of interest by laser capture microdissection and amplifying RNA extracted from the captured cells and hybridizing said amplified product using a microarray (see page 3, lines 13-26). Erlander et al. teach that said amplification is effected via T7 promoter driven amplification using t& RNA polymerase (page 4, lines 12-24, page 12, line 2-27, page 13, line 1-28page 14, line 1-28).

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to modify the method for detecting a ligand as taught by Ornstein et al. in view of Hendrickson in a manner of as taught by Erlander et al. with a step of including a promoter sequence in said nucleic acid label and detecting transcription products using a microarray for the purpose of increasing the sensitivity of the assay in a high throughput format in detecting gene expression profile of said ligand in various cell types. One skilled in the art would be motivated to combine the method as disclosed by Ornstein et al. in view of Hendrickson et al. in a manner taught by Erlander et al. because Erlander et al. explicitly taught that the method permits the detection of differential gene expression profile of ligand in various cells by incorporating the sensitive promoter driven transcription or amplification using antibody conjugated T7 promoter driven cDNA sequence (see page 5, line 12-27). An ordinary artisan would have a reasonable expectation of success that inclusion of the step of inclusion of T7 promoter driven cDNA sequence amplification and detection of transcription products using a microarray would result in detecting differential expression of ligand(s) in various cell types and such modification of the method would be obvious over the cited prior art in the absence of secondary considerations.

Response to arguments:

6. With regard to the rejection of claims 8-9 made in the previous office action, under 35 USC 112, second paragraph, Applicants' arguments and amendment are fully considered and the rejections are withdrawn in view of the amendment.

7. With regard to the rejection of claims 1-8, 10-19 and 21 made in the previous office action, under 35 USC 103(a) as being unpatentable over Ornstein et al. in view of Eberwine et al., Applicants' arguments and amendment are fully considered and the rejection is withdrawn in view of the persuasive arguments in part. The particular arguments regarding the detection step of Ornstein et al. are found unpersuasive because detection step depends on the parameters used in a method. Therefore the arguments are irrelevant to the present context and the reference of Ornstein et al. is used in the new rejections as discussed above.

8. With regard to the rejection of claims 9 and 20 made in the previous office action, under 35 USC 103(a) as being unpatentable over Ornstein et al. in view of Eberwine et al. further in view of Oku et al., Applicants' arguments and amendment are fully considered and the rejection is withdrawn in view of the persuasive arguments.

Conclusion

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 571-272-0783. The examiner can normally be reached on 8.30A.M. - 4.30P.M , Mon - Friday,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Suryaprabha Chunduru
Patent Examiner
Art Unit 1637

GARY BENZION, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600